MODEL STATEMENT OF WORK
FOR CONDUCTING REMEDIAL INVESTIGATIONS

PURPOSE

The purpose of this remedial investigation is to determine the nature and extent of the problem at the site and to gather all necessary data to support the feasibility study. MMI will furnish all personnel, Materials, and services necessary for, or incidental to, performing the remedial investigation at Arkwood, Inc., an uncontrolled hazardous waste site.

SCOPE

The remedial investigation consists of seven tasksl:

Task 1 - Description of Current Situation
Task 2 - Plans and Management
Task 3 - Site Investigation
Task 4 - Site Investigation Analysis
Task 5 - Laboratory and Bench-Scale Studies
Task 6 - Reports
Task 7 - Community Relations Support

TASK 1 - DESCRIPTION OF CURRENT SITUATION

Describe the background information pertinent to the site and its problems and outline the purpose for remedial investigation at the site. The data gathered during any previous investigations or inspections and other relevant data should be used.

This task may be conducted concurrently with Task 2, development of the work plan.

a. Site Background

Prepare a summary of the Regional location, pertinent area boundary features, and general site physiography, hydrology, and geology.

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1 The Remedial Investigation guidance should be consulted for additional information on the tasks listed below.

Define the total area of the site and the general nature of the problem, including pertinent history relative to the use of the site for hazardous waste disposal.

b. Nature and Extent of Problem

Prepare a summary of the actual and potential on-site and off-site health and environmental effects. This may include, but is not limited to, the types, physical states, and amounts of the hazardous substances; the existence and conditions of drums, tanks, waste piles, underground disposal units, and lagoons; affected media and pathways of exposure; contaminated releases such as leachate or runoff; and any human exposure. Emphasis should be placed on describing the threat or potential threat to public health and the environment.

c. History of Response Actions

Prepare a summary of any previous response actions conducted by either local, State, Federal, or private parties, including the site inspection and other technical reports, and their results. This summary should address any enforcement activities undertaken to identify responsible parties, compel private cleanup, and recover costs. A list of reference documents and their location shall be included. The scope of the remedial investigation should be developed to address the problems and questions that have resulted from previous work at the site.

d. Site Visit

Conduct an initial site visit to become familiar with site topography, access routes, and proximity of receptors to possible contamination and collect data for preparation of the site safety plan. The visit should be used to verify the site information developed in this Task.

e. Define Boundary Conditions

Establish site boundary conditions to limit the areas of site investigations. The boundary conditions should be set so that subsequent investigations will cover the contaminated media in sufficient detail to support following activities (e.g., the feasibility study). The boundary conditions may also be used to identify boundaries for site access control and site security. [If not in existence, installation of a fence or other security measures should be considered.]

f. Site Map

Prepare a site map at a scale small enough to clearly show all water features, drainage patterns, wells, springs,

past disposal areas, tanks, buildings, utilities, paved areas, easements, rights-of-way, and other pertinent features. The site map and all topographical surveys should be of sufficient detail and accuracy to locate and report all existing and future work performed at the site. Permanent baseline monuments, bench marks, and reference grid tied into any existing reference system (i.e., State or USGS) must be included on the site map.

g. Site Office

Establish a temporary site office to support site work.

TASK 2 - PLANS AND MANAGEMENT

Prepare all necessary plans for the remedial investigation. The work plan should include a detailed discussion of the technical approach, personnel requirements, and schedules, as well as the following:

a. Sampling Plan

Prepare a Sampling Plan to address all field activities to obtain additional site data. The plan will contain a statement of sampling objectives; specification of equipment, analyses of interest, sample types, and sample locations and frequency; and schedule. Consider use of field screening techniques to screen out samples that do not require off-site laboratory analysis. The plan will also include a quality assurance and quality control plan with documentation requirements and estimates of costs and labor. The plan must address all levels of the investigation as well as all types of investigations conducted (e.g., waste characterization, hydrogeologic, soils and sediments, air and surface water). The plan will identify potential remedial technologies and associated data that may be needed to evaluate alternatives for the feasibility study.

b. Health and Safety Plan

Prepare a Health and Safety Plan to address hazards that the investigation activities may present to the investigation team and to the surrounding community. The plan should address all applicable regulatory requirements and detail personnel responsibilities, protective equipment, procedures and protocols, decontamination, training, and medical surveillance. The plan should identify problems or hazards that may be encountered and their solutions. Procedures for protecting third parties, such as

visitors or the surrounding community, will also be provided.

c. Data Management Plan

Develop and initiate a Data Management Plan to document and track investigation data and results. This plan should identify and set up laboratory and data documentation materials and procedures, project file requirements, and project-related progress documents.

TASK 3 - SITE INVESTIGATION

Conduct only those investigations necessary to characterize the site and its actual or potential hazard to public health and the environment. The investigations should result in data of adequate technical content to support the development and evaluation of remedial alternatives during the feasibility study. Investigation activities will focus on problem definition and data to support the screening of remedial technologies, alternative development and screening, and detailed evaluation of alternatives.

The site investigation activities will follow the plans set forth in Task 2. All sample analyses will be conducted at laboratories following EPA protocols or their equivalents. Strict chain-of-custody procedures will be followed and all samples will be located on the site map [and grid system] established under Tasks 1 and 2.

a. Waste Characteriziation

Conduct a sampling and analysis program to characterize all materials of interest at the site. These materials should include wastes found above or below ground in tanks, drums, lagoons, visually contaminated soils, piles, or other structures.

b. Hydrogeologic Investigation

Conduct a program to determine the presence and potential extent of ground water contamination and to evaluate the suitability of the site for on-site waste containment.

This study should identify all aquifers and aquitards in the vicinity of the facility and include the data (e.g., well log, permeability) necessary for this identification. Efforts should begin with a well inventory and a survey of previous hydrogeologic studies and other existing data. The survey should address the degree of hazard, the mobility of pollutants considered (from Waste Characterization), the soils' attenuation capacity and mechanisms, discharge/recharge areas, and regional flow directions and water quality. An accompanying sampling program should be developed to determine the horizontal and vertical distribution of contaminants and predict the long-term disposition of contaminants. This plan shall include the proposed locations of all soil, ground water and surface water sampling or testing. Additionally, any dye tracing procedures proposed to determine ground water flow direction or velocity must be described.

c. Soils and Sediments Investigation

Conduct a program to determine the location and extent of contamination of surface and subsurface soils and sediments. The areas to be examined shall include but not be limited to the drip tracks, main treatment facility including sump and tank areas, storage areas for treated products, and any former disposal pits, lagoons, or dumping grounds. This process may overlap with certain aspects of the hydrogeologic study (e.g., characteristics of soil strata are relevant to both the transport of contaminants by ground water and to the location of contaminants in the soil; cores from ground water monitoring wells may serve as soil samples). A survey of existing data on soils and sediments may be useful. The horizontal and vertical extent of contaminated soils and sediments should be determined. Information on local background levels, degree of hazard, location of samples, techniques utilized, and methods of analysis should be included. The investigation should identify the locations and probable quantities of subsurface wastes, such as buried drums, through the use of appropriate geophysical methods.

d. Surface Water Investigation

Conduct a program to determine the extent of contamination of local surface water bodies including Walnut Creek and Barren Creek. This process may overlap with the soils and sediments investigation; data from stream or spring sediments sampled may be relevant to surface water quality. A survey of existing data on surface water flow quantity and quality may be a useful first step, particularly information on local background levels.

e. Air Investigation

Conduct a program to determine the extent of atmospheric contamination. The program should address the tendency of substances (identified through Waste Characterization) to enter the atmosphere, local wind patterns, and the degree of hazard.

TASK 4 - SITE INVESTIGATION ANALYSIS

Prepare a thorough analysis and summary of all site investigations and their results. The objective of this task will be to ensure that the investigation data are sufficient in quality (e.g., QA/QC procedures have been followed) and quantity to support the feasibility study.

The results and data from all site investigations must be organized and presented logically so that the relationships between site investigations for each medium are apparent. Analyze all site investigation data and develop a summary of the type and extent of contamination at the site. The summary should describe the quantities and concentrations of specific chemicals at the site and ambient levels surrounding the site. Describe the number, locations, and types of nearby populations and activities and pathways that may result in an actual or potential threat to public health, welfare, or the environment.

An Endangerment Assessment shall be required. This report shall examine the public health risks at the Site and provide the framework for the development of design goals for remedial alternatives that are based on applicable or relevant and appropriate requirements of other laws, where applicable, or risk analysis where those requirements are not available. Guidance related to the requirements of such a report shall be provided by EPA.

TASK 5 - LABORATORY AND BENCH-SCALE STUDIES

The following applies when additional studies are necessary to fully evaluate remedial alternatives.

Conduct laboratory and/or bench-scale studies to determine the applicability of remedial technologies to site conditions and problems. Analyze the technologies, based on literature review, vendor contacts, and past experience to determine the testing requirements.

Develop a testing plan identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and data management and interpretation guidelines for submission to EPA and State for review and approval.

Upon completion of the testing, evaluate the testing results to assess the technologies with respect to the site-specific questions identified in the test plan. Scale up those technologies selected based

on testing results.

Prepare a report summarizing the testing program and its results, both positive and negative.

TASK 6 - REPORTS

a. Progress Reporting Requirements

Monthly reports shall be prepared by the Respondents to describe the technical progress of the project. These reports should discuss the following items:

1. Identification of site and activity
2. Status of work at the site and progress to date
3. Percentage of completion and schedule status
4. Difficulties encountered during the reporting period
5. Actions being taken to rectify problems
6. Activities planned for the next month
7. Changes in personnel

The monthly progress report will list target and actual completion dates for each element of activity, including project completion, and will provide an explanation of any deviation from the milestones in the work plan.

b. Final Report

Prepare a final report covering the remedial investigation and submit copies to the EPA and the Arkansas Department of Pollution Control and Ecology. The report shall include the results of Tasks 1 through 5, and should include additional information in appendices. The report shall be structured to enable the reader to cross-reference with ease.

TASK 7 - COMMUNITY RELATIONS SUPPORT

MMI may be required to support EPA by providing personnel, services, materials, and equipment to undertake a community relations program. Although this may be a limited program, community relations must be integrated closely with all remedial response activities. The objectives of this effort are to achieve community understanding of the actions taken and to obtain community input and support prior to selection of the remedial alternative(s).

Community relations support should include, but may not be limited to, the following:

- Support EPA in the preparation of slide shows, exhibits, and other audio-visual materials designed to apprise the community of current or proposed actions.

- Establishment of a community information center.

- Preparation of reports and participation in public meetings, project review meetings, and other meetings as necessary to the normal progress of the work.

All community relations support must be consistent with Superfund community relations policy, as stated in the "Guidance for Implementing the Superfund Program" and Community Relations in Superfund -- A Handbook.